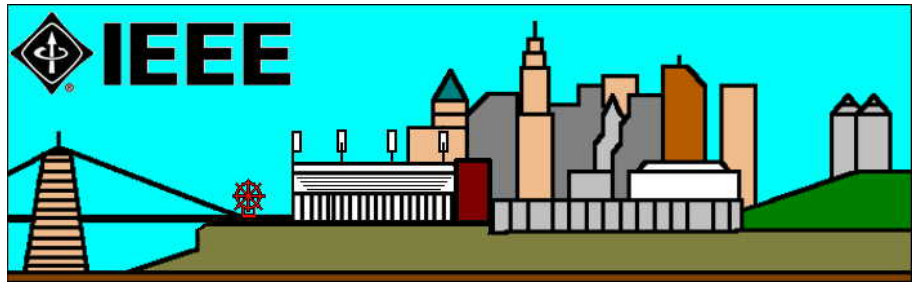


**IEEE CINCINNATI
SECTION
NEWSLETTER
MARCH 2006**



MARCH MEETING
EMBEDDING A MICROPROCESSOR
INSIDE AN FPGA

DATE: Thursday, March 23, 2006

PLACE : Raffel's – 10160 Reading Road (see below for directions)

TIME : 5:30 p.m. to 7:00 p.m. - Social Time/Dinner
7:00 p.m. to 8:30 p.m. - Program

COST FOR DINNER: \$10.00 for Student Members
\$15.00 for Members
\$20.00 for Non-Members

NOTE: DINNERS ARE ALWAYS OPTIONAL - YOU MAY ATTEND THE PROGRAM ONLY.

Raffel's is located at 10160 Reading Road, south of Glendale-Milford Road on the east side of Reading. Take I-75 to the Glendale-Milford Rd. Exit, go east on Glendale-Milford Road approximately 3/4 of a mile to Reading Rd. and turn right on Reading.

The Section Meetings provide a great opportunity to network with fellow engineers in the area!!!

Please call the Cincinnati Section Voice Mailbox at **513-629-9380**, by **Noon, Tuesday, March 21, 2006** if you plan to attend. Please leave your Name, IEEE Member Number, and a daytime telephone number. You can also make a reservation by e-mailing our Arrangements Chair, Charlie Nash, at cnash@ieee.org.

ABOUT THE MEETING: At this month's meeting, which was originally scheduled for last December, Brian Avsec of Altera Corp. will present the Nios® II soft-core processor that enables you to choose your own set of peripherals, tradeoff cost and performance, avoid processor obsolescence, and accelerate your design time. A demonstration will follow showing how to build a system in minutes and accelerate your software over 100x. The presentation will cover:

- Decrease system cost, complexity, and power consumption by integrating processors, peripherals, memory, and I/O interfaces on a single FPGA
- Boost software performance with hardware acceleration
- Extend your product's market competitiveness, adding new features with in-field upgrades
- Nios® II integrated development environment (IDE) – a full-featured software development suite based on the Eclipse IDE project
- Free evaluation

Brian Avsec is a Field Applications Engineer with Altera Corp. for the past 11 years and has worked on 1000's of development projects in the Midwest. He has been part of the transition of Programmable Logic from a simple logic device with a few hundred gates to the main system component with millions of gates.

CHAIR'S MESSAGE

by Jim Everly, Section Chair

Last month's at Harris was very interesting and the tour of their facilities was the highlight of the evening. A sincere "thank you" is extended to the technical team at Harris for an interesting meeting.

A new IEEE Web Site was introduced in mid-January and is worth a visit. The effort was organized by the former Region 2 Director Mark Apter, and represents a significant improvement in navigating the IEEE web site. The main navigation bar is now found the top of the web page and is the key to finding information. The new web site works smarter and looks sharper!

Another IEEE web site of interest is the "Try Engineering" site which is a joint effort with IBM to develop a site for high school students and career counselors interested in engineering. The site is scheduled for completion in June and will provide students with a route to accredited engineer schools. If you know of students interested in engineering as a career this site promises to be of value.

Again, just a reminder, the Cincinnati Section is recruiting members to be upgraded to Senior Member. This could be your month to elevate your membership. The application process is easy if you have an up-to-date resume. If you are interested in elevating your IEEE membership to Senior Member, be sure to attend the monthly section meeting. After the technical presentation I will hold an informal session on how to prepare a senior member application.

MEMBERSHIP NEWS

NEW MEMBERS

The following individuals are IEEE members who are new to our Section:

D. F. Aldrich	Mark C. Fisher	David B. Moore
Faris Alqadah	Charles H. Gibson	Alexander N. Moore
Andrew Benedetti	Sean R. Grier	Jeremy D. Smith
Wade Burkitt	Tonya Harrison	Derrick D. Tucker
Malolan Chetlur	Shirley High	Andrew G. Yenco
Pamela D. Conard	Joe A. Mackey	

We wish to welcome these new members to the Cincinnati Section!!!

New Cincinnati Section Senior Members

The Cincinnati Section would like to congratulate our newest Senior Members, **Mr. Richard Field** and **Dr. Seshu V. Madabhushi**, whose upgrade applications were recently approved.

If you are interested in upgrading your membership to Senior Member, please contact any member of the Executive Committee.

College of Applied Science

TECH EXPO 2006

**Become a
Sponsor**

Commemorating
our **20th year**
of Tech Expo

TECH EXPO

Friday, May 19, 2006

Cinergy Center

(Convention Center – downtown Cincinnati)

contact:

Betsy Zelek

513/702-2732

bzms@zoomtown.com

UNIVERSITY OF
l&C
Cincinnati

Levels of Participation

EDISON

\$2500

- Be featured as the sponsor of a community of student and business exhibits in your field or discipline. As a sponsor, your 10' x 10' exhibit booth will be placed in a premium location and will feature special signage and draping. *This benefit will be offered to a very limited number of companies and organizations!*
- Sponsor a departmental award named for your business — award will honor a top student display at Tech Expo
- Receive a complimentary booth at the popular CAS Job Fair, held in 2006-07 — a \$250 value that provides access to hundreds of students and alumni!
- Invitation for your company representative to attend the VIP networking reception at Tech Expo 2006; your company will receive special recognition at this event
- Assist in selection of the *Industry Partners Commendation Award* for the best senior project display
- Have a photo of your Expo booth *plus* a special listing as an Edison Community Sponsor in the 2006-07 edition of *Tech Record* (alumni publication — distribution 10,000)
- Special listing as an Edison Community Sponsor in the 2006 edition of the Tech Expo Program

RIEVESCHL

\$1500

- Sponsor a departmental award named for your business — award will honor a top student display at Tech Expo 2006
- Receive a complimentary booth at the popular CAS Job Fair, held in 2006-07 — a \$250 value that provides access to hundreds of students and alumni!
- Assist in selection of the *Industry Partners Commendation Award* for the best senior project display
- 10' x 10' display booth during Tech Expo 2006
- Invitation for your company representatives to attend the VIP networking reception at Expo 2005
- Have a photo of your Expo booth *plus* a corporate listing in 2006-07 edition of *Tech Record* (alumni publication — distribution 10,000)
- Corporate Listing in 2006 edition of the Tech Expo Program

PARKER

\$750

- 10' x 10' display booth during Tech Expo 2006
- Invitation for your company representatives to attend the VIP networking reception at Expo 2006
- Corporate Listing in 2006-07 edition of *Tech Record* (alumni publication — distribution 10,000)
- Corporate Listing in 2006 edition of the Tech Expo Program

Your sponsorship is tax deductible to the fullest extent of the law. Checks should be made payable to the University of Cincinnati Foundation.

UC's College of Applied Science Celebrates 20 Years of Tech Expo

Tech Expo, the premier annual event at the College of Applied Science, celebrates 20 years on Friday, May 19. This event showcases the senior design projects completed by students at the College of Applied Science in disciplines ranging from Electrical Engineering Technology to Information Technology to Mechanical Engineering Technology to Construction Management and others. This year's event is again being held at the Cinergy Center downtown, runs from 10am to 4pm and is free and open to the public.

New additions to the event this year include a seminar presented by TechSolve on "lean management" offered at no cost to all Tech Expo business sponsors. The popular VIP Networking Reception returns as well, and new enhancements to sponsorship levels have been made.

IEEE members are encouraged to attend Tech Expo – you will be amazed by the innovative, creative and diverse student projects. Members are also encouraged to consider sponsoring Tech Expo – see the **Fact Sheet on the 2006 Tech Expo** on the Section's Web Page (<http://ieee.cincinnati.fuse.net/>) to learn about sponsorship opportunities. For more information, contact Project Leader Betsy Zelek at bzms@zoomtown.com, or by phone at (513) 702-2732.

Scanning the Past: A History of Electrical Engineering from the Past

Submitted by Dick Reiman, Historian

Copyright 1994 IEEE. Reprinted with permission from the IEEE publication, "Scanning the Past" which covers a reprint of an article appearing in the Proceedings of the IEEE Vol. 82, No.4, April 1994.

Hendrik van der Bijl

Sixty years ago this month, the PROCEEDINGS OF THE INSTITUTE OF RADIO ENGINEERS (IRE) included a classic paper on the theory of vacuum-tube amplifiers by Hendrik van der Bijl. At the time, he was in the laboratory of the Western Electric Company, the manufacturing unit of the American Telephone and Telegraph Company. His paper disclosed some of the important work dealing with the design of vacuum-tube triodes which he had accomplished since joining Western Electric in 1913. Van der Bijl pointed out that the vacuum tube deserved much of the credit for the "recent rather remarkable developments in the art of radio communication." He outlined a theory based on a fundamental equation which gave the plate current as a function of plate and grid voltages and the structural parameters of the tube. He observed that it would be quite difficult to achieve satisfactory operation of electronic devices "without an explicit mathematical formulation of the operation." He included a derivation of a tube constant which he called the "amplification constant" and showed how it could be used in the calculation of the predicted gain of a small-signal amplifier in an actual circuit. He stated that the two most important tube constants were the amplification constant and the internal impedance, both of which depended on tube structure.

Van der Bijl was born in 1887 in Pretoria, South Africa, and graduated with a degree in physics from Victoria College in 1908. He then went to Germany where he earned the Ph.D. degree at the University of Leipzig in 1912. He taught physics for a year at a technological school in Dresden before coming to the United States in 1913 to accept a research position at Western Electric. He was assigned to work with Harold Arnold and others on development of reliable electronic repeaters for use in long-distance telephony. He developed a methodology for the design of vacuum tubes and used it to design the amplifiers used for the first transcontinental telephone line between New York and San Francisco, which began operation in 1915. He also designed a grid modulator circuit for an experimental vacuum-tube radio transmitter used in long-distance radio communication tests by Western Electric engineers during 1915. Van der Bijl received at least 17 United States patents, for which he filed applications between 1914 and 1918. He authored the first comprehensive book on vacuum tubes, entitled *The Thermionic Vacuum Tube and its Applications*, published in 1920.

Van der Bijl returned to his native South Africa in 1920 where he became an advisor to the government on industrial development. In 1923 he helped organize the Electricity Supply Commission which was responsible for creating a national electrical power system. In 1939 he established the Industrial Development Corporation of South Africa to finance industrial development and headed it for several years. During World War II he served as Director-General of War Supplies.

Van der Bijl served as President of the South African Institute of Electrical Engineers in 1927 and was elected Vice-President of the IRE in 1945. He died in Johannesburg, South Africa, in 1948 at age 61.

*James E. Brittain
School of History, Technology, and Society
Georgia Institute of Technology*

IEEE NEWS

IEEE's "The Institute" On-Line

The updated issue of IEEE's "The Institute" is always available on-line at <http://www.ieee.org/theinstitute>. Check out some of these items which are featured:

- IEEE Starts to Plug Away at Standard for Power Line Communications. High-speed data communications over ordinary power lines, which could give anyone access to the Internet simply by plugging a computer into an electrical outlet, has become a commercial reality. The IEEE Standards Association has convened a working group to develop a standard governing how devices delivering broadband over power lines should operate. Read more at <http://boldfish.ieee.org:80/u/2056/04824637>
- Iran Section Gets Busy Once Again. A new year brings the promise of a new beginning. That certainly is true this year for the IEEE Iran Section, which is working to rebuild its membership after the U.S. Department of the Treasury's Office of Foreign Assets Control ruled, in May 2005, that the IEEE can once again recognize the section as one of its official units. That means the section can again organize activities for its members and students. Learn more at <http://boldfish.ieee.org:80/u/2057/04824637>
- 59 Gain Highest IEEE Honors. The IEEE is proud to present the IEEE medals and service awards for 2006, plus an honorary membership, corporate recognition awards, as well as honors for prize papers and technical field accomplishments. The institute's highest medal, the IEEE Medal of Honor, went to James D. Meindl, of the Georgia Institute of Technology. The awards are presented on behalf of the IEEE Board of Directors. For a full listing, visit <http://boldfish.ieee.org:80/u/2058/04824637>
- Life as an Engineering Undergrad, Explained. High school students and parents in the Philadelphia area got a glimpse of the life of an undergraduate engineering student when they attended an IEEE event last December, called "So You Want to Be an Engineer." The meeting drew 160 attendees, who got answers to questions such as what topics engineers study in college and what kind of work they do. At the same time, they tried their hand at building simple electronic devices. Find out more at <http://boldfish.ieee.org:80/u/2059/04824637>
- Helped Wanted Ads Double On IEEE Job Site. Last year was a banner year for the IEEE Job Site, with more company job postings and more job seekers coming online to view those jobs than ever before. The number of postings nearly doubled, to more than 10,000, compared with less than 5250 in 2004. The increase in postings is due in part to 500 new companies that began running recruitment ads on the site last year. Read more at <http://boldfish.ieee.org:80/u/2060/04824637>

- Web Politics: Googlearchy or Googlocracy? This month, a Web-only IEEE Spectrum Online article takes on the myth of search engines' popularity bias, which holds that search engines will most likely find large Web sites, thus increasing those sites' prominence. But new research says that, while search tools such as Google do not completely level the playing field for smaller sites to be noticed, their operation partially mitigates the rich-get-richer nature of the Web and gives new sites a better chance of being discovered. Find out more at <http://boldfish.ieee.org:80/u/2061/04824637>
- Opportunities for Semiconductor Engineers Posted on IEEE Job Site. AMI Semiconductor, a leader in the design and manufacture of silicon solutions, is looking for engineers with semiconductor experience, coupled with bachelor's or master's degrees. The company offers the automotive, medical, and industrial markets optimal value, with quickest time-to-market solutions. A global operation with headquarters in Pocatello, Idaho, AMI's European offices are located in Oudenaarde, Belgium, and it also has sales and design centers in North America, Europe, and Asia. To view current AMI job openings worldwide on the IEEE Job Site visit <http://boldfish.ieee.org:80/u/2063/04824637>
- IEEE Spectrum Hosts Online Career Forum. On 11 April, IEEE Spectrum will host its second online Career Accelerator Forum. The forum will offer insight and advice on such subjects as earning an advanced degree, staying ahead in your field, landing your dream job, and changing your career. During this interactive event you can also question a panel of experts on these subjects from the convenience of your computer. For more information, a list of panelists, or to sign up for the forum, visit <http://boldfish.ieee.org:80/u/2064/04824637>
- Dancing to the Nanotech Beat: To IEEE Senior Member Ted Sargent, nanotechnology is all about romance. In his mind, the field of nanotechnology is about creating structural -- as well as chemical -- conditions to encourage two molecules to join together in eternal, passionate embrace. Find out more at <http://boldfish.ieee.org:80/u/2245/04824637>.
- Engineers: Work on Your Networking Skills: For many people, networking is simply the art of schmoozing. But Karen Susman, keynote speaker at a recent IEEE online networking seminar, sees networking as the building of long-lasting, mutually beneficial relationships. She also spoke of seven ways to enhance a career by improving networking skills. Read more at <http://boldfish.ieee.org:80/u/2246/04824637>.
- Group Gives Helping Hand to Standards Developers: The IEEE group that provides management and administrative services to industry groups developing standards ended 2005 on a high note. The IEEE Industry Standards and Technology Organization boosted its list of clients to 13, with the addition of two new standards groups. Learn more at <http://boldfish.ieee.org:80/u/2247/04824637>.
- Marketplace of Ideas: Boss as Big Brother? Nine out of 10 companies monitor their employees' e-mail, Web use, and phone calls, according to a survey by the American Management Association. Employers do this to catch cyberslackers, to deter possible sexual harassment cases and hostile workplace claims, and to keep company secrets safe, according to the survey. Should companies be watching employees in this way? Weigh in at institute@ieee.org.
- Conference Tutorials Go Online: Until recently, the only way for members to learn about a topic covered at one of the many tutorial sessions presented at IEEE conferences was to attend the meeting in person. Not anymore. The new Expert Now IEEE tutorials are being made available online to members as 1- and 2-hour- long training courses. Read more at <http://boldfish.ieee.org:80/u/2249/04824637>.

- Accelerate Your Career at the IEEE Spectrum Online Forum: On 11 April, IEEE Spectrum hosts its second online Career Accelerator Forum. The forum will offer insight and advice on such subjects as earning an advanced degree, staying ahead in your field, landing your dream job, and changing careers. During this interactive event you can also question a panel of experts on such subjects from the convenience of your computer. For more information and a list of panelists, visit <http://boldfish.ieee.org:80/u/2250/04824637>. To sign up for the forum, go to <http://boldfish.ieee.org:80/u/2251/04824637>
- Conference to Examine the State of Wind Power: With energy consumption rising rapidly, political unrest in oil-producing countries, and the possibility that oil may have reached its peak of production, renewable energy such as wind power is bound to be increasingly important in the years to come. That's one message the organizers of the symposium Wind Power: Technology, Economics, and Politics -- to be held 20 and 21 April, in Washington, D.C. -- hope to get across. Find out more at <http://boldfish.ieee.org:80/u/2253/04824637>.
- IEEE-USA Offers Leadership and Customer Service Courses: In the global marketplace, the need to differentiate yourself from the competition is more important than ever. Engineers who combine technical skills with, for example, teamwork and communication skills, are more likely to remain employed and to advance in their careers. To help these engineers move up, IEEE-USA is offering online career development courses on leadership and customer service. Find out more at <http://boldfish.ieee.org:80/u/2254/04824637>
- Proceedings Explore the Latest in Computer-Aided Design: The proceedings from the IEEE/ACM International Conference of Computer-Aided Design are now available through the IEEE Xplore digital library. The conference emphasized contributions that had significant theoretical and practical impact on new design areas. Depending on their access rights, institutions with subscriptions to IEEE online collections can access the proceedings at <http://boldfish.ieee.org:80/u/2255/04824637>. The print version of these proceedings is also available through ShopIEEE at <http://boldfish.ieee.org:80/u/2256/04824637>
- Another Toy Story: A blanket of snow over New York City didn't discourage toy enthusiasts from attending the American International Toy Fair last week. Toys employ more technology than ever, and IEEE Spectrum Senior Associate Editor Stephen Cass has caught all the action in his video blog on IEEE Spectrum Online's Tech Talk. The blog chronicles the serious business of playthings while covering some of the big hits that were at the show, including interactive online mystery games and programmable robots. Find out more at <http://boldfish.ieee.org:80/u/2257/04824637>.

IEEE, AWEA, and UWIG to Present Wind Energy Policy Symposium

The Institute of Electrical and Electronics Engineers (IEEE), the American Wind Energy Association (AWEA) and the Utility Wind Integration Group (UWIG) today announced plans to cosponsor a symposium on the current status of wind power and electric utilities. According to the three organizations, this event, "Wind Power: Technology, Economics, and Politics" is targeted towards a broad cross-section of policy makers, including regulators, legislators, government officials, and other interested parties regarding the technical, economic, reliability, operational, and implementation issues related to wind power.

The symposium, to be held April 20-21, 2006 at the Omni Shoreham Hotel in Washington, D.C., is intended to provide insights from a public policy perspective on which policies have contributed to successful experiences with wind power, and what lessons have been learned. The primary objective is to provide an opportunity for those involved in policy making to develop an improved understanding of wind power.

According to the official announcement of the event, “Wind energy is one of the fastest-growing energy industries in the U.S. and world today. An abundant energy source with no emissions, it offers enormous benefits, yet poses some unique challenges for electric utilities. Drawing on the collective strengths of the three organizations, a strong agenda of speakers will address the issues and opportunities facing this growing industry today, and share insights on its future. This is an exceptional opportunity for non-technical professionals working on legislative, regulatory, and policy issues associated with wind power and sustainable energy policy to get an objective, up-to-date picture of the status and prospects for wind power in the US, as well as a perspective on the European experience to date.”

The agenda for the event is still being confirmed, but invited speakers include Senator Jeff Bingaman (D-N.M.), Commissioner Nora Brownell of the Federal Energy Regulatory Commission, and Mark Udall (D-Colo.) and Zach Wamp (R-Tenn.), Co-chairs of the House Renewable Energy Caucus.

More information on the symposium, including agenda and registration, can be found on the Internet at: http://www.ieee.org/portal/pages/pes/subpages/meetings-folder/2006_Wind/windpower.html.

****IEEE-USA IN ACTION ** Talent, Techniques, Advanced Tools Key to Future Engineering Success, Says IEEE Fellow and Former NSF Official**

WASHINGTON (9 March 2006) -- “In anticipating the future, we must recognize that civilization is on the brink of a new industrial world order,” IEEE Fellow Dr. Joseph Bordogna said during his keynote address at the IEEE-USA Leadership Workshop in St. Louis on 4 March.

“Success will not be garnered by those who simply make commodities faster and cheaper than the competition. They will be those who develop talent, techniques and tools so advanced that competitive capability can be continually robust.”

Bordogna is a former deputy director (1999-2005) and chief operating officer of the National Science Foundation, and served as IEEE president in 1998. His address, “Round, Flat or Spiky, the World Turns on an Axis,” provided his vision on how engineers can contribute to future innovation in a world undergoing swift and constant technological transformation.

“Engineers will have to be effective collaborators, innovators, risk takers, and communicators, working across shifting boundaries, and embracing diversity,” Bordogna said. “They will need to know the human and social dimensions of technology. Our social and economic progress depends upon it. All of you carry the excitement and the responsibility to make it happen.”

Bordogna, now the Alfred Fitler Moore Professor of Engineering at the University of Pennsylvania, added that “creative transformation” -- the process of converting energy to momentum -- is the flip side of “creative destruction”:

“That process -- energy to momentum -- which engineers certainly embrace, speaks directly to the excitement and inspiration of integrative 21st century science and engineering innovation at the frontier. Propelled by advances in genomics, materials, computer-communications, and advances in cognition, mathematics and social science, our profession is on the verge of new, exhilarating frontiers.”

To read the entire Bordogna address, go to <http://www.ieeeusa.org/calendar/conferences/2006workshop/Presentations/Bordogna-keynote.pdf>

The IEEE Cincinnati Section Executive Committee

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